

Date: Thursday, 3/13/2008 10:22:29 AM  
 User: Kim Johnston

## Process Sheet

13

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD X-TUBE EXT HEIGHT(-013)
Job Number	: 37947		
Estimate Number	: 10565		
P.O. Number	:	Part Number	: D205596105
This Issue	: 3/13/2008 S.O. No. :	Drawing Number	: D205596105
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: 1/1 Type : LANDING GEAR	Drawing Revision	: B
Previous Run	: 37946	Material	:
Written By	:	Due Date	: 3/27/2008 Qty: 1 Um: Each
Checked & Approved By	: <u>JA 08 03 13</u>		
Comment	: Est Rev:D 05.03.21 Added bending procedure KJ/JLM		
	: Est Rev:E 08-01-10 ECN 1075 DD		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy D205-594 bluefile &amp; type labels per PPP D205-596-105 CHG002

08/03/19 JA

2.0	D2889	FWD Crosstube
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D2889 Aft Crosstube 38034

DP 8-4-8

3.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

Mark 23.92" for cutting from tangential line in the straight section from D2889 as per Dwg wall template.

see attachment mf 08-04-07

4.0	QC15	DIMENSIONAL CHECK OF X-TUBES
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Comment: DIMENSIONAL CHECK OF X-TUBES

S 08/01/08 (H)

5.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1-Cut as per Dwg D205-596-105

2-Deburr &amp; Inspect for surface damage. Polish cut surface. Scribe part # and batch # on one end of tube.

see attachment mf 08-04-07

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/13/2008 10:22:29 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD X-TUBE EXT HEIGHT(-013)

Job Number: 37947

Part Number: D205596105

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC15

DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

*Sofu*

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

*AWM 8-4-11*

Chemical Conversion Coat per QSI 005 4.1

8.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

*ml 08 04 14*

*(1)*

1-Prime inside and outside with Immron per QSI 005 4.2

9.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

*25 08-04-15*

10.0

D3595063450

RUBBER CUSHION



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

RUBBER CUSHION

batch 35124

*ml 08 04 16*

11.0

MS2192025

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Clamp(per MIL-DTL-8783C)

batch 107236

*ml 08 04 16*

12.0

D28931

Support



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number

Description

Batch

2 D2893-1

Support

36647

*ml 08 04 16*

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/13/2008 10:22:29 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD X-TUBE EXT HEIGHT(-013)

Job Number: 37947

Part Number: D205596105

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



*see attachment  
MF 08-04-07*



Comment: LANDING GEAR RESOURCE 1

1- Apply magnobond 6398 as per dwg D205-596-105

Magnobond 6398 Batch: \_\_\_\_\_

*ml 08 04 16 ①*

2- Install supports and clamps per Dwg D205-596-105. Torque clamps to 80-100 in lb. as per dwg

14.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*8/04/17*

15.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205-596-105

Location: \_\_\_\_\_

PPP Rev: *0*

*8/4/17*

*SD*

*①*

16.0

QC21

FINAL INSPECTION/W/O RELEASE



*08/04/18*

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



*MF 08-04-17*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

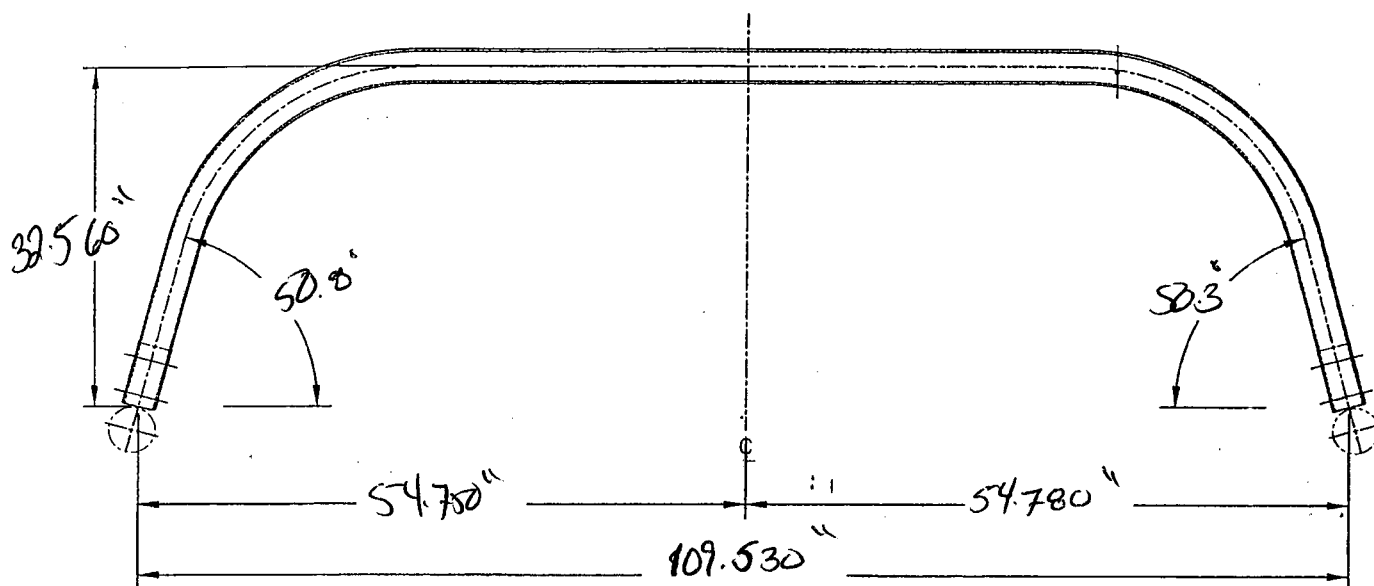
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	37947
Description: Crosstube High-High Fwd		Part Number:	D205-596-105
Inspection Dwg: D205-596-105		Rev: A	Page 1 of 1

08.03.13

Required Dimension	Min	Max
Height	32.4	32.6
1/2 Span	54.6	54.8
Angle	49	52
Total Span	109.2	109.6



Comments

QC15 Inspection	08/04/08
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	

**PARTS LIST:**

Qty	Part Number	Description
X	D205-596-105	CROSSTUBE ASSEMBLY, HI-HI FWD
1	D6005-180	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURE FROM D6005-180  
FINISHED LENGTH =  $134.40 \pm 0.02$
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH  
VIBRATING STYLUS
- 7) WEIGHT: 40 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO  
BENDING IS 6% BASED ON O.D.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS  
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT  
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT  
WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION  
AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE D2893-1 ON  
SUPPORT ON THE TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE  
CROSSTUBE SUPPORT.

**NOTE:** IT IS ACCEPTABLE TO SUBSTITUTE MS21920-25 CLAMPS WITH LONGER (MS21920-26) OR  
SHORTER (MS21920-24) CLAMPS TO ACCOMODATE VARYING DIAMETERS. ENSURE THERE IS A  
MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.

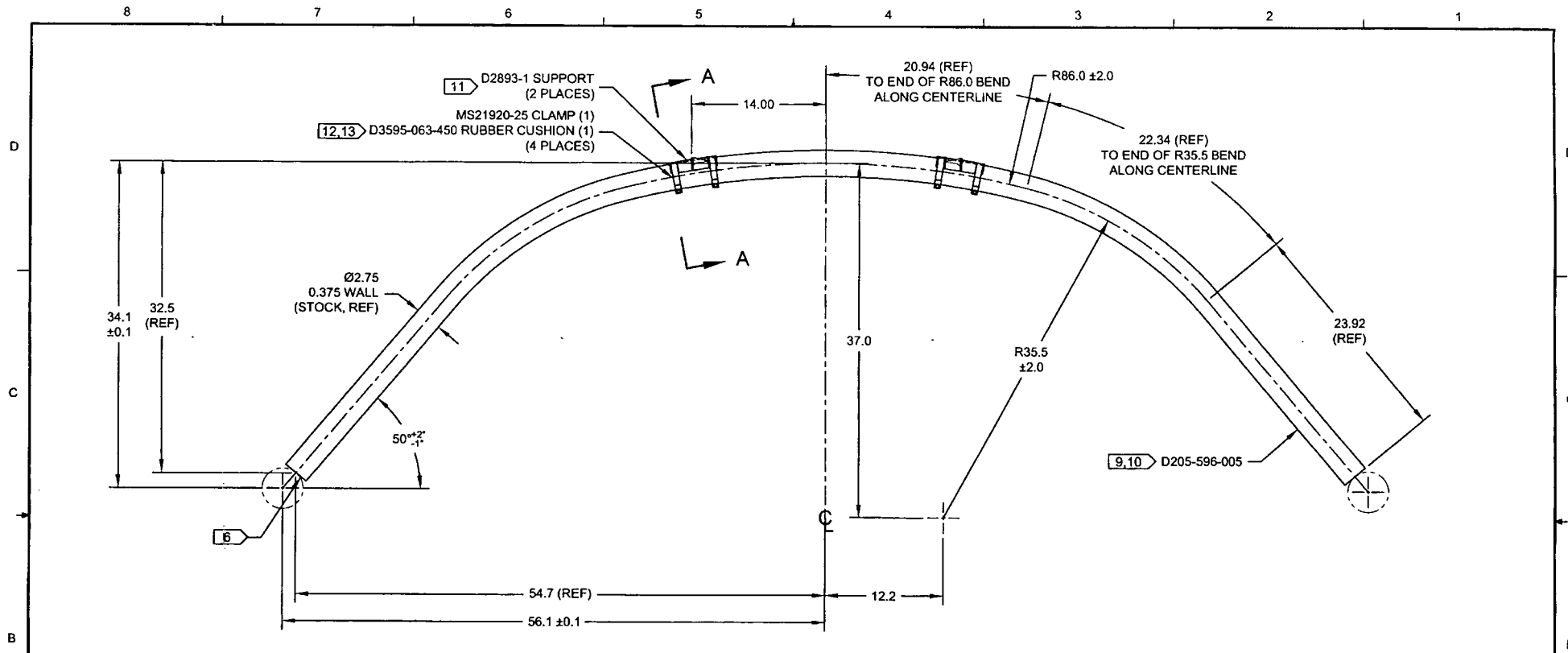
- 13) TORQUE CLAMPS 80 TO 100 IN-LB

RELEASED  
06.01.14  
NO. 037947

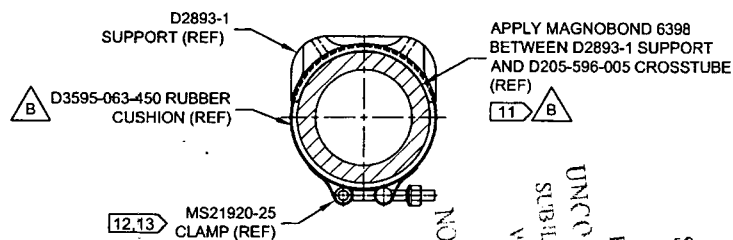
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
OUT NOTICE  
WORK ORDER

B	SUPPORT NOW MAGNOBONDED; REMOVE D2856-600-851 ABRASION STRIP; UPDATED NOTES; ADDED D3595-063-450 CUSHION; MS21920-25 WAS MS21920-24	MB	07.12.03
A	NEW ISSUE	DS	02.11.20
REV.	DESCRIPTION	BY	DATE
DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	1	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PH	DRAWING NO.	REV. B
MFG. APPR.	EE	D205-596-105	SHEET 1 OF 2
APPROVED	TH	TITLE	SCALE
DE APPR.	TH	CROSSTUBE ASSEMBLY, HI-HI FWD	NTS
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**D205-596-105 CROSSTUBE ASSEMBLY, HI-HI FWD**



**SECTION A-A**  
SCALE 2:5

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WITHOUT NOTICE

RELEASED  
07.01.14 WED

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D205-596-105	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASSEMBLY, HI-HI FWD	1:1
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Date: Friday, 04/04/2008 12:52:38 PM  
 User: Melanie Fauteux

## Process Sheet

<b>Customer</b> : CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b> : FWD X-TUBE EXT HEIGHT(-013)
<b>Job Number</b> : 37947	
<b>Estimate Number</b> : 10565	
<b>P.O. Number</b> :	<b>Part Number</b> : D205596105
<b>This Issue</b> : 04/04/2008 <b>S.O. No.</b> :	<b>Drawing Number</b> : D205596105
<b>Prsht Rev.</b> : NC	<b>Project Number</b> : N/A
<b>First Issue</b> : 13/03/2008 <b>Type</b> : LANDING GEAR	<b>Drawing Revision</b> : B
<b>Previous Run</b> : 37946	<b>Material</b> :
<b>Written By</b> :	<b>Due Date</b> : 27/03/2008 <b>Qty:</b> 1 <b>Um:</b> Each
<b>Checked &amp; Approved By</b> :	
<b>Comment</b> : Est Rev:D 05.03.21 Added bending procedure KJ/JLM	
Est Rev:E 08-01-10 ECN 1075 DD	

Additional Product

~~REFERENCE ONLY~~ mf

Job Number:



Seq. #:

Machine Or Operation:

Description :

3.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Mark 23.92" for cutting from tangential line in the straight section from D2889 as per Dwg wall template.

D8-4-8



Job Completion



Date: Friday, 04/04/2008 12:52:56 PM  
User: Melanie Fauteux

# Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD X-TUBE EXT HEIGHT(-013)
Job Number	: 37947		
Estimate Number	: 10565		
P.O. Number	:	Part Number	: D205596105
This Issue	: 04/04/2008 S.O. No. :	Drawing Number	: D205596105
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: 13/03/2008 Type : LANDING GEAR	Drawing Revision	: B
Previous Run	: 37946	Material	:
Written By	:	Due Date	: 27/03/2008 Qty: 1 Um: Each
Checked & Approved By	:		
Comment	: Est Rev:D 05.03.21 Added bending procedure KJ/JLM Est Rev:E 08-01-10 ECN 1075 DD		

Additional Product

~~REFERENCE ONLY~~ *mp*

Job Number:



Seq. #:	Machine Or Operation:	Description :
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5.0	CROSSTUBES	CROSSTUBES RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1-Cut as per Dwg D205-596-105

*DP 8-4-9*

*ALM 8-4-10*

2-Deburr & Inspect for surface damage. Polish cut surface. Scribe part # and batch # on one end of tube.

Job Completion



Date: Friday, 04/04/2008 12:53:17 PM  
 User: Melanie Fauteux

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD X-TUBE EXT HEIGHT(-013)
Job Number	: 37947		
Estimate Number	: 10565		
P.O. Number	:	Part Number	: D205596105
This Issue	: 04/04/2008 S.O. No. :	Drawing Number	: D205596105
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: 13/03/2008 Type : LANDING GEAR	Drawing Revision	: B
Previous Run	: 37946	Material	:
Written By	:	Due Date	: 27/03/2008 Qty: 1 Um: Each
Checked & Approved By	:		
Comment	: Est Rev:D 05.03.21 Added bending procedure KJ/JLM Est Rev:E 08-01-10 ECN 1075 DD		

Additional Product

~~REFERENCE ONLY~~ ml

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1- Apply magnobond 6398 as per dwg D205-596-105

Magnobond 6398 Batch: 106695 Time: 10:00AM  
 exp: 04/2009

2- Install supports and clamps per Dwg D205-596-105. Torque clamps to 80-100 in lb. as per dwg

 ml 08 04 16 ①  
 ml 08 04 17 ①

Job Completion

